

CLAIMS

1 1. A method for managing transactions among nodes in a network
2 including a plurality of nodes which execute processes involved in the
3 transactions, comprising:

4 storing machine-readable specifications of a plurality of participant
5 interfaces, the participant interfaces identifying transactions, the respective
6 transactions being identified by definitions of input documents, and definitions
7 of output documents, the definitions of the input and output documents
8 comprising respective descriptions of sets of storage units and logical structures
9 for the sets of storage units;

10 receiving data comprising a document through a communication
11 network;

12 parsing the document according to the specifications to identify an input
13 document and one or more transactions which accept the identified input
14 document;

15 providing at least a portion of the input document in a machine-readable
16 format to transaction processes associated with the one or more identified
17 transactions.

1 2. The method of claim 1, including:

2 providing a repository storing a library of logical structures, schematic
3 maps for logic structures, and definitions of documents comprising logic
4 structures used to build participant interface descriptions.

1 3. The method of claim 2, including providing access to the
2 repository through the communication network to other nodes in the network.

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1 4. The method of claim 1, wherein the machine-readable
2 specification includes documents compliant with a definition of a participant
3 interface document including logical structures for storing an identifier of a
4 particular transaction, and at least one of definitions and references to definitions
5 of input and output documents for the particular transaction.

1 5. The method of claim 1, wherein the machine-readable
2 specifications include documents compliant with a definition of a participant
3 interface document including logical structures for storing an identifier of the
4 participant interface, and for storing at least one of specifications and references
5 to specifications of a set of one or more transactions supported by the participant
6 interface.

1 6. The method of claim 5, wherein the documents compliant with a
2 definition of a participant interface document include a reference to a
3 specification of a particular transaction, and the specification of the particular
4 transaction includes a document including logical structures for storing at least
5 one of definitions and references to definitions of input and output documents
6 for the particular transaction.

1 7. The method of claim 1, wherein the storage units comprise parsed
2 data.

1 8. The method of claim 7, wherein the parsed data in at least one of
2 the input and output documents comprises: - - -

3 character data encoding text characters in the one of the input and output
4 documents, and

5 markup data identifying sets of storage units according to the logical
6 structure of the one of the input and output documents.

1 9. The method of claim 8, wherein at least one of the sets of storage
2 units encodes a plurality of text characters providing a natural language word.

1 10. The method of claim 9, wherein the specification includes
2 interpretation information for at least one of the sets of storage units identified
3 by the logical structure of at least one of the input and output documents,
4 encoding respective definitions for sets of parsed characters.

1 11. The method of claim 9, wherein the storage units comprise
2 unparsed data.

1 12. The method of claim 1, wherein the providing at least a portion of
2 the input document in a machine-readable format to transaction processes
3 associated with the one or more identified transactions includes executing a
4 routing process according to a processing architecture, and including:

5 compiling in response to the definitions of the input and output
6 documents in the participant interfaces, data structures corresponding to the sets
7 of storage units and logical structures of the input and output documents
8 compliant with the processing architecture of the transaction process,
9 instructions executable by the system to translate the input document to the
10 corresponding data structures.

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13. The method of claim 1, wherein the providing at least a portion of the input document in a machine-readable format to transaction processes associated with the one or more identified transactions includes executing a routing process according to a processing architecture, and including translating at least a portion of the incoming document into a format readable according to the processing architecture.

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14. The method of claim 13, wherein the translating includes producing programming objects including variables and methods according to the processing architecture of the routing process.

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1 19. The method of claim 1, wherein the repository includes
2 standardized document types for use in a plurality of transactions, and wherein
3 the definition of one of the input and output documents includes a reference to a
4 standardized document type in the repository.

1 20. The method of claim 19, wherein the repository includes a
2 standardized document type for identifying participant processes in the network.

1 21. The method of claim 19, including providing a repository of
2 interpretation information for logical structures, including interpretation
3 information identifying parameters of transactions.

1 22. The method of claim 1, wherein the transaction processes have
2 respectively one of a plurality of variant transaction processing architectures, and
3 including translating at least of portion of the incoming document into a format
4 readable according to the variant transaction processing architecture of the
5 respective transaction processes, and routing the translated portion to the
6 respective transaction processes.

1 23. The method of claim 22, wherein the translating includes
2 producing programming objects including variables and methods according to
3 the variant transaction processing architecture of the respective transaction
4 processes.

1 24. The method of claim 23, wherein the variant transaction
2 processing architectures of the transaction processes comprises a process
3 compliant with an interface description language.

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1 25. Apparatus for managing transactions among nodes in a network
2 including a plurality of nodes which execute processes involved in the
3 transactions, comprising:

4 a network interface;
5 memory storing data and programs of instructions, including machine-
6 readable specifications of a plurality of participant interfaces, the participant
7 interfaces identifying transactions, the respective transactions being identified by
8 definitions of input documents, and definitions of output documents, the
9 definitions of the input and output documents comprising respective descriptions
10 of sets of storage units and logical structures for the sets of storage units;

11 a data processor coupled to the memory and the network interface which
12 executes the programs of instructions; wherein the programs of instructions
13 include

14 logic to receive data comprising a document through a network interface;

15 logic to parse the document according to the specifications to identify an
16 input document and one or more transactions which accept the
17 identified input document; and

18 logic to provide at least a portion of the input document in a machine-
19 readable format to transaction processes associated with the one
20 or more identified transactions.

1 26. The apparatus of claim 25, including a repository stored in
2 memory accessible by the data processor storing a library of logical structures,
3 schematic maps for logic structures, and definitions of documents comprising
4 logic structures used to build participant interface descriptions.

1 27. The apparatus of claim 25, including logic to access a repository
2 stored in memory through the network interface storing a library of logical
3 structures, schematic maps for logic structures, and definitions of documents

4 comprising logic structures used to build participant interface descriptions.

1 28. The apparatus of claim 25, wherein the machine-readable
2 specification includes documents compliant with a definition of a participant
3 interface document including logical structures for storing an identifier of a
4 particular transaction, and at least one of definitions and references to definitions
5 of input and output documents for the particular transaction.

1 29. The apparatus of claim 25, wherein the machine-readable
2 specifications include documents compliant with a definition of a participant
3 interface document including logical structures for storing an identifier of the
4 participant interface, and for storing at least one of specifications and references
5 to specifications of a set of one or more transactions supported by the participant
6 interface.

1 30. The apparatus of claim 29, wherein the documents compliant with
2 a definition of a participant interface document include a reference to a
3 specification of a particular transaction, and the specification of the particular
4 transaction includes a document including logical structures for storing at least
5 one of definitions and references to definitions of input and output documents
6 for the particular transaction.

1 31. The apparatus of claim 25, wherein the storage units comprise
2 parsed data.

1 32. The apparatus of claim 31, wherein the parsed data in at least one
2 of the input and output documents comprises:

3 character data encoding text characters in the one of the input and output
4 documents, and

5 markup data identifying sets of storage units according to the logical
6 structure of the one of the input and output documents.

1 33. The apparatus of claim 32, wherein at least one of the sets of
2 storage units encodes a plurality of text characters providing a natural language
3 word.

1 34. The apparatus of claim 33, wherein the specification includes
2 interpretation information for at least one of the sets of storage units identified
3 by the logical structure of at least one of the input and output documents,
4 encoding respective definitions for sets of parsed characters.

1 35. The apparatus of claim 33, wherein the storage units comprise
2 unparsed data.

1 36. The apparatus of claim 25, wherein the logic to provide at least a
2 portion of the input document in a machine-readable format to transaction
3 processes associated with the one or more identified transactions includes a
4 routing process according to a processing architecture, and including:

5 a compiler responsive to the definitions of the input and output
6 documents in the participant interfaces, to compile data structures corresponding
7 to the sets of storage units and logical structures of the input and output
8 documents compliant with the processing architecture of the transaction
9 process, and to compile instructions executable by the system to translate the
10 input document to the corresponding data structures.

1 37. The apparatus of claim 25, wherein the logic to provide at least a
2 portion of the input document in a machine-readable format to transaction
3 processes associated with the one or more identified transactions includes a

4 routing process according to a processing architecture, and including logic to
5 translate at least of portion of the incoming document into a format readable
6 according to the processing architecture.

1 38. The apparatus of claim 37, wherein the logic to translate includes
2 producing programming objects including variables and methods according to
3 the processing architecture of the routing process.

1 39. The apparatus of claim 25, wherein logic to provide at least a
2 portion of the input document in a machine-readable format to transaction
3 processes associated with the one or more identified transactions, includes a
4 router to route the portion of the input document to the identified transactions.

1 40. The apparatus of claim 39, wherein the router includes logic to
2 send the input document on the network interface to a node executing one of
3 the identified transactions.

1 41. The apparatus of claim 25, wherein the definitions of the input
2 and output documents comprise document type definitions compliant with a
3 standard Extensible Markup Language XML.

1 42. The apparatus of claim 41, wherein the specifications of
2 participant interfaces comprise definitions of documents according to document
3 type definitions compliant with a standard Extensible Markup Language XML.

1 43. The apparatus of claim 26, wherein the repository includes
2 standardized document types for use in a plurality of transactions, and wherein
3 the definition of one of the input and output documents includes a reference to a
4 standardized document type in the repository.

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44. The apparatus of claim 26, wherein the repository includes a
standardized document type for identifying participant processes in the network.

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45. The apparatus of claim 25, wherein the transaction processes
have respectively one of a plurality of variant transaction processing
architectures, and including logic to translate at least of portion of the incoming
document into a format readable according to the variant transaction processing
architecture of the respective transaction processes, and to route the translated
portion to the respective transaction processes.

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46. The apparatus of claim 45, wherein the logic to translate
produces programming objects including variables and methods according to the
variant transaction processing architecture of the respective transaction
processes.

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47. The apparatus of claim 45, wherein the variant transaction
processing architectures of the transaction processes comprises a process
compliant with an interface description language.

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